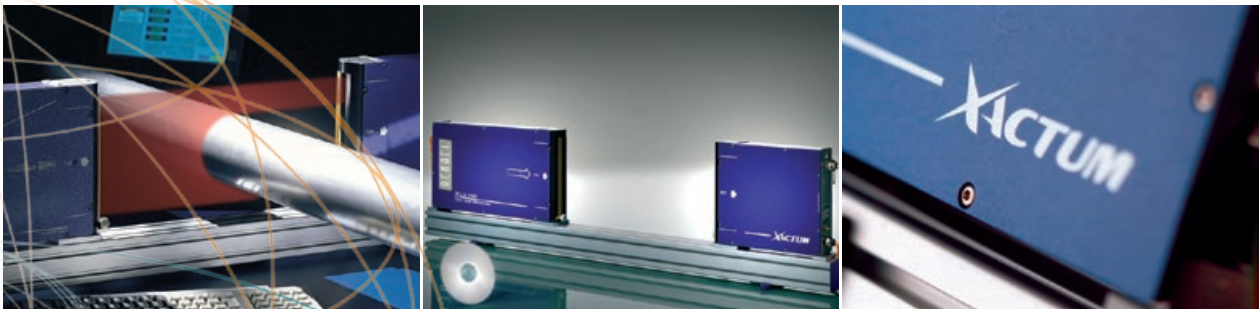


# **ACTUM** Laser Micrometer for very high accuracy diameter measurement

## **XLS 150**



**Ultra accurate, high speed Laser Gauge  
for contact-less diameter measurement,  
featuring built-in electronics and  
Ethernet/Rs232/Rs485 interface**

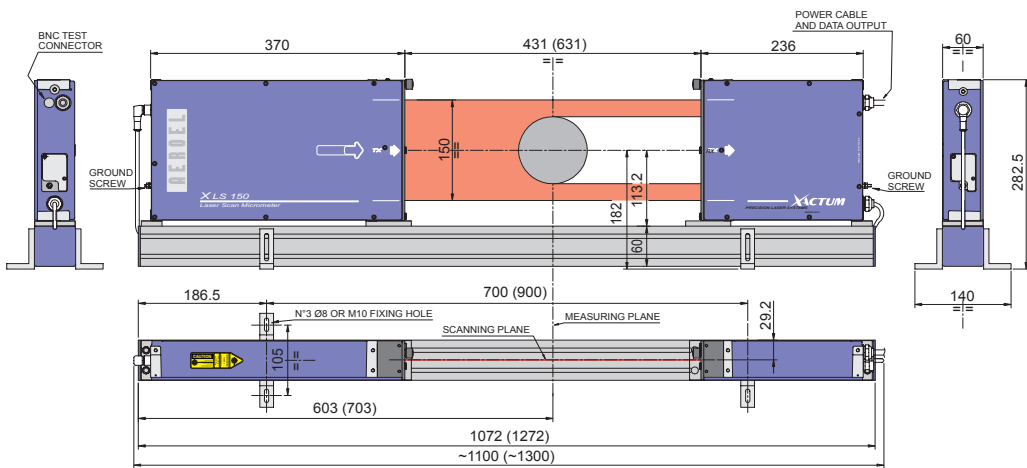
- 150 mm measuring range
- 0.6  $\mu\text{m}$  repeatability
- 1200 Hz scanning frequency
- Excellent linearity
- Permanent self calibration
- Separable transmitter and receiver
- 3 years guarantee
- Fully re-programmable
- Direct connection to PC, PLC e NC

**It' s an ideal Intelligent Diameter Sensor for  
the on-line control of products like:**

- Turned parts
- Metal tubes and bars
- Plastic extruded tubes
- Rolled or extruded profiles
- Hot rolled products

**AEROEL**

PRECISION LASER SYSTEMS



This product conforms to the following standards:  
21 CFR 1040.10 (USA) • CEI EN-60826-1; 2003-4-1 (EU)

Type of gauge	XLS150/200/A	XLS150/200/B	XLS150/1200/A	XLS150/1200/B
Measuring Field (mm)	150			
Measurable Diameters (mm)	0.8 + 149			
Resolution (Selectable) (µm)	10 / 1 / 0.1 / 0.01			
Linearity (Centred Product) (µm)	± 3 <sup>(1)</sup>			
Linearity (in the Measuring Plane) <sup>(2)</sup> (µm)	± 4			
Side Linearity <sup>(3)</sup> (µm/mm)	± 0.08			
Repeatability (T=1s, ±3σ) (µm)	± 0.8		± 0.6	
Single Shot Repeatability (±3σ) (µm)	± 5		± 8	
Beam Spot Size (s,l) <sup>(4)</sup> (mm)	0.5 x 4	0.5 x 0.3	0.5 x 4	0.5 x 0.3
Side Dither of the Scanning Plane (mm)	± 1.3		± 0.33	
Scanning Frequency (Hz)	200		1200	
Scanning Speed (m/s)	376		564	
Gauge Thermal Coefficient <sup>(5)</sup> (µm/mm°C)	-0.0062			
Power Supply	24 VDC; 0.3 A (1 A peak)			
Laser Source	VLD (Visible Laser Diode); λ = 650 nm			
Dimensions <sup>(6)</sup> (mm)	~ 1100 (1300) x 282.5 x 140			
Weight <sup>(6)</sup> (kg)	15 (15.7)			
Operating Temperature Range (°C)	0 + 50			
Storage Temperature (°C)	-20 + +70			
Atmospheric Humidity	Max 85% (non-condensing)			
Altitude (m)	0 + 3000 over sea level			
Protection	IP65 (optical windows not included)			

#### Notes

Two standard models are available: the first with head separation 431 mm and the second with head separation 631 mm.

<sup>(1)</sup> For  $\Phi \leq 70$  mm. For  $70 \leq \Phi \leq 149$  mm the linearity is  $\pm 5$  µm.

<sup>(2)</sup> Maximum error, when a master is moved in the measuring plane, checked with  $10 \text{ mm} \leq \Phi \leq 140$  mm. The measuring plane is located halfway between transmitter and receiver.

<sup>(3)</sup> Maximum error, for a side displacement of the master out of the measuring plane.

<sup>(4)</sup> Elliptical spot: the smallest dimension is the thickness.

<sup>(5)</sup> Typical value. It states the measurement drift due to the room temperature change, when measuring a master with null coefficient of expansion (INVAR).

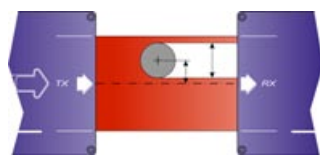
<sup>(6)</sup> The figures between brackets are related to the model with head separation 631 mm.

Specifications subject to change without notice

#### SPECIFICATIONS IN ALS MODE, CONNECTED TO A CE-10 OR IBU-10 EXTERNAL UNIT

Type of ALS compatible gauge	ALS150/200/A	ALS150/200/B	ALS150/400/A	ALS150/400/B
Resolution (Selectable) (µm)	10 / 1			
Repeatability (T=1s, ±3σ) (µm)	± 1.5		± 1	
Single Shot Repeatability (±3σ) (µm)	not specified			
Scanning Frequency (Hz)	200		400	
Scanning Speed (m/s)	376			

## Types of measures, with standard software



**Only 1 part in the measuring field**, opaque or transparent  
**Measured dimensions:** diameter and centre position

Note: other types of measures are possible by loading dedicated software

## Measurement processing

**Instant Values:** simple average over n scans, being  $n \geq 1$  programmable

**Extreme Values:** Average, Max, Min and Range = (Max-Min) over k Instant Values, being  $k \geq 1$  programmable

## Input / Output

2 digital inputs / Rs232 and Rs485, max 115.2 kbaud / Ethernet 10 Base-T / ALS Binary Video

## Measurement mode

**Free-Running:** it processes continuously groups of k Instant Values to compute the related Extreme Values.

**On-Command, Single-Shot:** after an external command, it processes only 1 group of k Instant Values to compute the related Extreme Values. The external command is a rising edge on a digital input or a command message via Ethernet.

**On-Command, Continuous:** during a time interval set by an external command, it processes all the measured Instant Values, to compute their Extreme Values. The measuring time is set by a logic high level on a digital input and/or by Start/Stop messages via Ethernet.

**Auto-Sync:** like On-Command, Single-Shot, but the measurement is automatically triggered by a valid measurement condition (1 part in the measuring field), after a programmable delay.

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